CURRICULUM VITAE - Adil Hassam July 24, 2003

PERSONAL INFORMATION

Professor of Physics
Department of Physics and Institute for Plasma Research
University of Maryland, College Park

Education

Ph.D.	Princeton University	1978	Astrophysical Sciences
S.M./S.B.	MIT	1974	Physics

Employment Background

University of Maryland, College Park

1995–	Professor	Department of Physics
1988–1995	Associate Professor	Department of Physics
1982–1988	Assistant Professor	Department of Physics and Astronomy
1981–1982	Research Associate	
1978–1981	Postdoctoral Fellow	Center for Theoretical Physics

Princeton University

1974–1978	Research Assistant	Department of Astrophysical Sciences

Massachusetts Institute of Technology

1972–1974	Research Assistant	Center for Space Research

Awards

1. Excellence in Teaching Award, University of Maryland, Department of Physics (1983)
2. Fellow, American Physical Society (1991)
3. Honorable Mention, Dean's Award for Excellence in Teaching, College of CMPS, UM (1999)
4. Certificate of Teaching Excellence, Center for Teaching Excellence Award, UM (2001)

RESEARCH, SCHOLARLY, AND CREATIVE ACTIVITIES

Publications in Refereed Journals

1. A. B. Hassam, Transmission of Alfvén Waves Through the Earth's Bow Shock; Theory and Observation, J. of Geo. Res. **83**, 643 (1978).
2. A. B. Hassam and R. M. Kulsrud, Time Evolution of Mass Flows in a Collisional Tokamak, Phys. Fluids **21**, 2271 (1978).
3. A. B. Hassam and R. M. Kulsrud, Convective Cells and Transport in Toroidal Plasmas, Phys. Fluids **22**, 2097 (1979).
4. A. B. Hassam, Higher Order Chapman-Enskog Theory for Electrons, Phys. Fluids **23**, 38 (1980).
5. A. B. Hassam, Fluid Theory of Tearing Instabilities, Phys. Fluids **23**, 2493 (1980).
6. J. F. Drake and A. B. Hassam, Collisional Drift Waves in a Plasma with Electron Temperature Inhomogeneity, Phys. Fluids **24**, 1262 (1981).
7. A. B. Hassam and J. F. Drake, The Rippling Instability, Phys. Fluids **26**, 133 (1983).
8. J. F. Drake, T. M. Antonsen, A. B. Hassam, and N. T. Gladd, Stabilization of the Tearing Mode in High Temperature Plasma, Phys. Fluids **26**, 2509 (1983).
9. A. B. Hassam and Y. C. Lee, Drift-Ideal Magnetohydrodynamics, Phys. Fluids **27**, 1138 (1984).
10. J. F. Drake, P. N. Guzdar, A. B. Hassam, and J. D. Huba, Nonlinear Mode Coupling Theory of the Lower-Hybrid-Drift Instability, Phys. Fluids **27**, 1148 (1984).
11. A. B. Hassam, Collisional Tearing of Field-Reversed Configurations, Phys. Fluids **27**, 2877 (1984).
12. B. D. Scott, A. B. Hassam, and J. F. Drake, Nonlinear Evolution of Drift-Tearing Modes, Phys. Fluids **28**, 275 (1985).
13. J. D. Huba, A. B. Hassam, I. B. Schwartz, and M. J. Deskinen, Ionospheric Turbulence: Interchange Instabilities and Chaotic Behavior, Geophys. Res. Lett. **12**, 65 (1985).
14. A. B. Hassam, Kinetic and Fluid Theories of Low Frequency Magnetohydrodynamics: A Comparison, Phys. Fluids **28**, 1684 (1985).
15. Bruce D. Scott, J. F. Drake, and A. B. Hassam, Nonlinear Stability of Drift-Tearing Modes, Phys. Rev. Lett. **54**, 1027 (1985).
16. A. B. Hassam, Bruce D. Scott, J. F. Drake, and D. A. Boyd, Mirnov Oscillations as a Diagnostic for the Radial Electric Field in Tokamaks, Comments in Plasma Physics and Controlled Fusion **9**, 207 (1985).

17. A. B. Hassam, Quasilinear Evolution of the Self-Filamentation Instability, Phys. Fluids **29**, 4103 (1986).

18. Bruce D. Scott and A. B. Hassam, Analytical Theory of Nonlinear Drift-Tearing Mode Stability, Phys. Fluids **30**, 190 (1987).

19. A. B. Hassam, W. Hall, J. D. Huba, and M. J. Keskinen, Spectral Characteristics of Interchange Turbulence in the Ionosphere, J. Geophys. Res., 13513 (1987).

20. A. B. Hassam and J. D. Huba, Structuring of the Magnetotail Ampte Release, Geophys. Res. Lett. **14**, 60 (1987).

21. A. N. Dharamsi and A. B. Hassam, Excited State Triplet-Triplet Absorption in αNPO, Appl. Spectrosc. **41**, 1318 (1987).

22. B. H. Ripin, E. A. McLean, C. K. Manka, C. Pawley, J. A. Stamper, T. A. Peyser, A. N. Mostovych, J. Grun, A. B. Hassam, and J. D. Huba, Large Larmor Radius Interchange Instability, Phys. Rev. Lett. **57**, 2299 (1987).

23. J. D. Huba, J. G. Lyon, and A. B. Hassam, Theory and Simulation of the Rayleigh-Taylor Instability in the Large Larmor Radius Limit, Phys. Rev. Lett. **59**, 2971 (1987).

24. A. B. Hassam and J. D. Huba, Magnetohydrodynamic Equations for Systems with Large Larmor Radius, Phys. Fluids **31**, 318 (1988).

25. A. B. Hassam, Analytic Equilibrium of Thin Force-Free Current Layers in Solar Magnetic Arcades, Astrophys. J. **329**, 1002 (1988).

26. A. B. Hassam, Magnetic Tearing in Plasma Discharges Due to Nonuniform Resistivity, Phys. Fluids Letters **31**, 2068 (1988).

27. J. F. Drake, P. N. Guzdar, and A. B. Hassam, Streamer Formation in Plasmas with Temperature Gradient, Phys. Rev. Lett. **61**, 2205 (1988).

28. A. N. Dharamsi and A. B. Hassam, On the Feasibility of Nonthermal Optoacoustic Spectroscopy of Solids, Applied Spectroscopy **43**, 345 (1989).

29. A. N. Dharamsi and A. B. Hassam, Cold Shock Waves in Semiconductors and Insulators, J. Appl. Phys. **65**, 2998 (1989).

30. A. N. Dharamsi and A. B. Hassam, Production of Picosecond Acoustic Pulses, J. Acoustical Soc. Amer. **85**, 1560 (1989).

31. J. D. Huba, A. B. Hassam, and P. Satyanarayana, Nonlocal Theory of the Interchange Instability in the Unmagnetized Ion Limit, Phys. Fluids **B1**, 931 (1989).

32. A. B. Hassam and A. N. Dharamsi, The Deuterium Molecule in the Presence of Electronic Change Contributions: Implications for Cold Fusion, Phys. Rev. A **40**, 6689 (1989).

33. A. B. Hassam, Tearing Modes in Solar Coronal Loops, Ap. J. **348**, 778 (1990).

34. J. D. Huba, A. B. Hassam, and D. Winske, Stability of Sub-Alfvénic Plasma Expansions, Phys. Fluids B **2**, 1676 (1990).

35. A. B. Hassam, T. M. Antonsen, Jr., J. F. Drake, and P. N. Guzdar, Theory of Ion Temperature Gradient Instabilities: Thresholds and Transport, Phys. Fluids B **2**, 1822 (1990).

36. A. B. Hassam and J. D. Huba, Nonlinear Evolution of the Unmagnetized Ion Rayleigh-Taylor Instability, Phys. Fluids B **3**, 2001 (1990).

37. A. M. Dimits, J. F. Drake, A. B. Hassam, and B. Meerson, Formation of Streamers in Plasma with an Ion Temperature Gradient, Phys. Fluids B **2**, 2591 (1990).

38. A. N. Dharamsi and A. B. Hassam, Band Structure of Materials Suitable for Production of Pico and Subpicosecond Optoacoustic Pulses, J. Acoustical Soc. America **90**, 1186 (1991).

39. E. N. Opp and A. B. Hassam, Kelvin Helmholtz Instability for Systems with Large Effective Larmor Radius, Phys. Fluids B **3**, 885 (1991).

40. J. B. Harold and A. B. Hassam, A Simulation of the December 1984 Solar Wind AMPTE Release, Geophys. Res. Lett. **18**, 135 (1991).

41. P. N. Guzdar, J. F. Drake, A. M. Dimits and A. B. Hassam, Transport Barrier in Ion Temperature Gradient Driven Turbulence, Phys. Fluids B **3**, 1381 (1991).

42. A. M. Dimits, J. F. Drake, P. N. Guzdar, and A. B. Hassam, Ion Temperature Gradient Driven Turbulence and Transport in a Sheared Magnetic Field, Phys. Fluids B **3**, 620 (1991).

43. A. B. Hassam, Stabilization of Tokamak Microturbulence by Driven Poloidal Rotation, Comments in Plasma Phys. and Controlled Fusion **14** 275 (1991).

44. A. B. Hassam, T. M. Antonsen, J. F. Drake, and C. S. Liu, Spontaneous Poloidal Spin-Up of Tokamaks and the Transition to H-mode, Phys. Rev. Lett. **66**, 309 (1991).

45. A. B. Hassam, Nonlinear Stabilization of the Rayleigh-Taylor Instability by External Velocity Shear, Phys. Fluids B (Letters) **3**, 485 (1992).

46. J. F. Drake, A. B. Hassam, P. N. Guzdar, and C. S. Liu, Loss of Static Equilibrium, Flow Generation, and the Development of Turbulence in Tokamaks, Nucl. Fusion (Letters) **32**, 1657 (1992).

47. A. B. Hassam, Reconnection of Stressed Magnetic Fields, Ap. J. **399**, 159 (1992).

48. D. R. McCarthy, P. N. Guzdar, J. F. Drake, T. M. Antonsen Jr., and A. B. Hassam, Stability of Resistive and Ideal Ballooning Modes in TEXT and DIII-D, Phys. Fluids B **4**, 1846 (1992).

49. J. F. Drake, J. M. Finn, P. Guzdar, V. Shapiro, V. Shevchenko, F. Waelbroeck, A. B. Hassam, C. S. Liu, and R. Sagdeev, Peeling of Convection Cells and the Generation of Sheared Flow, Phys. Fluids B (Letters) **3**, 488 (1992).

50. F. L. Waelbroeck, T. M. Antonsen, Jr., P. N. Guzdar, and A. B. Hassam, Theory of Drift Acoustic Instabilities in the Presence of Sheared Flows, Phys. Fluids B **4**, 2441 (1992).

51. D. R. McCarthy, J. F. Drake, P. N. Guzdar, and A. B. Hassam, Formation of the Shear Layer in Toroidal Edge Plasmas, Phys. Fluids B **5**, 1188 (1993).

52. A. B. Hassam, T. M. Antonsen, J. F. Drake, P. N. Guzdar, C. S. Liu, D. R. McCarthy, and F. L. Waelbroeck, Spontaneous and Driven Perpendicular Rotation in Tokamaks, Phys. Fluids B **5**, 2519 (1993).

53. P. N. Guzdar, J. F. Drake, D. R. McCarthy, A. B. Hassam, and C. S. Liu, Three-Dimensional Fluid Simulation of the Nonlinear Drift-Resistive Ballooning Modes in Tokamak Edge Plasmas, Phys. Fluids B **5**, 3712 (1993).

54. A. B. Hassam and J. F. Drake, Spontaneous Poloidal Spin-up of Tokamak Plasmas: Reduced Equations, Physical Mechanism, and Sonic Regimes, Phys. Fluids B **5**, 4072 (1993).

55. A. B. Hassam and T. M. Antonsen, Jr., Poloidal Spin-Up of Tokamak Plasmas from Poloidal Asymmetry of Particle and Momentum Sources, Phys. Plasmas **1**, 337 (1994).

56. J. B. Harold and A. B. Hassam, Two Ion Fluid Numerical Investigations of Solar Wind Gas Releases, J. Geophys. Res. **99**, 19325 (1994).

57. Y. T. Lau, J. F. Drake, P. N. Guzdar, and A. B. Hassam, Disintegration of Banana Orbits in Tokamak Edge Plasma, Nucl. Fusion Lett. **35**, 605 (1995).

58. A. B. Hassam, Poloidal Rotation of Tokamak Plasmas at Super Poloidal-Sonic Speeds, Nucl. Fusion **36**, 707 (1996).

59. A. B. Hassam, Dynamics and Dissipation of Compressional Alfvén Waves Near Magnetic Cusp Configurations, Phys. Plasmas **2**, 4662 (1995).

60. O. A. Hurricane, T. H. Jensen, and A. B. Hassam, 2D MHD Simulation of a Flowing Plasma, Phys. Plasmas **2**, 1976 (1995).

61. R. L. Miller, F. W. Waelbroeck, A. B. Hassam, and R. E. Waltz, Stabilization of Ballooning Modes with Sheared Toroidal Rotation, Phys. Plasmas **2**, 3676 (1995).

62. R. A. Scheper and A. B. Hassam, The Damping of Compressional Alfvén Waves Near Magnetic Cusp Configurations, Ap. J. **455**, 693 (1995).

63. T. M. Antonsen, J. F. Drake, P. N. Guzdar, A. B. Hassam, Y. T. Lau, C. S. Liu and S. V. Novakovski, Physical Mechanism of Enhanced Stability for Negative Shear in Tokamaks: Implications for Edge Transport and the L-H Transition, Phys. Plasmas Lett. **3**, 2221 (1996).

64. S. V. Novakovski, A. A. Galeev, C. S. Liu, R. Z. Sagdeev, and A. B. Hassam, Neoclassical Rotation of Tokamak Plasmas in the Plateau Regime, **2** (10), 3566–8 (1995).

65. A. B. Hassam and R. P. Lambert, Shear Alfvénic Disturbances in the Vicinity of Magnetic Null X-Points, Ap. J. **472**, 832 (1996).

66. J. F. Drake, Y. T. Lau, P. N. Guzdar, A. B. Hassam, S. V. Novakovski, B. Rogers and A. Zeiler, Local Negative Shear and the Formation of Transport Barriers, Phys. Rev. Lett. **77**, 494 (1996).

67. P. N. Guzdar and A. B. Hassam, Self-Consistent Model for L-H Transitions in Tokamaks, Phys. Plasmas **3**, 3701 (1996).

68. P. Gohil, K. H. Burrell, A. B. Hassam, and T. H. Osborne, Plasma Rotation and the Radial Electric Field During Off-axis NBI in the DIII-D Tokamak, Plasma Phys. & Contr. Fusion **38**, 1243 (1996).

69. Z. Chacko and A. B. Hassam, Steady State MHD Plasma Flow Past Conducting Sphere, Phys. Plasmas **4**, 3031 (1997).

70. A. B. Hassam, Steady State Centrifugally Confined Plasmas for Fusion, Comments in Plasma Physics and Controlled Fusion **18**, 263 (1997).

71. J. J. Martinell, P. N. Guzdar, and A. B. Hassam, Derivation of Equations for Fluctuations and Transport in Flux Tube Geometry, Phys. Plasmas 5, 1273(1998).

72. R. A. Scheper and A. B. Hassam, Line Tying and the Reduced MHD Equations, Ap. J., 511, 976 (1999).

73. R. A. Scheper and A. B. Hassam, Formation of current sheets in two-dimensional geometry, Ap. J. **507**, 968 (1998).

74. A. B. Hassam, R. M. Kulsrud, R. J. Goldston, H. Ji, and M. Yamada, Steady State Thermoelectric Field-Reversed-Configurations, Phys Rev Lett 83, 2969 (1999)

75. A. B. Hassam, Stability of Magnetohydrodynamic Dean Flow as Applied to Centrifugally Confined Plasmas, Phys. Plasmas 6, 3738 (1999).

76. A. B. Hassam, Velocity Shear Stabilization of Interchange Modes in Elongated Plasma Configurations, Phys. Plasmas 6, 3772 (1999).

77. Barnes DC, Hammer J, Hassam A, Hill D, Hoffman A, Hooper B, Kesner J, Miley G, Perkins J, Ryutov D, Sarff J, Siemon RE, Slough J, Yamada M, Fusion energy science opportunities in emerging concepts, JOURNAL OF FUSION ENERGY 18 (1): 13-17 (1999)

78. D. C. Barnes et al, Fusion energy science opportunities in emerging concepts, J. Fusion Energy 18, 13 (1999)

79. A. B. Hassam, J. F. Drake, Deepak Goel, and D. P. Lathrop, Liquid Metal Flow Encasing a Magnetic Cavity, Phys. Plasmas (Lett) 7, 1081 (2000).

80. S. DeSouza-Machado, A. B. Hassam, R. Sina, Stabilization of Z pinch by velocity shear, Phys. Plasmas 7, 4632 (2000).

81. R. F. Ellis, A. B. Hassam, S. Messer, and B. N. Osborn, An Experiment to test Centrifugal Confinement for Fusion, Phys. Plasmas 8, 2057 (2001).

82. Y. M. Huang and A. B. Hassam, Velocity shear stabilization of centrifugally confined plasma, Phys Rev Lett 8723 (23): 5002 (2001)

83. A. M. Rey and A. B. Hassam, Convection in an asymmetrically sourced Z pinch, Phys Plasmas 8, 5151 (2001)

84. Huang YM, Hassam AB, Magnetorotational and Parker instabilities in magnetized plasma Dean flow as applied to centrifugally confined plasmas, PHYS PLASMAS 10 (1): 204-213 (2003)

Unpublished Reports

1. J. F. Drake, A. B. Hassam, R. E. Denton, and R. G. Kleva, Nonlinear Reduced Equations with Magnetic Pumping in Toroidal Plasmas, (1988).

2. A. B. Hassam and T. M. Antonsen, Jr., Effect of Flow Shear on Nonlinear Tearing Modes, (1986).

3. A. N. Dharamsi and A. B. Hassam, Photostrictively Induced Shocks in Semiconductors and Insulators: Factors Affecting Thermalization, (1990).

4. A. B. Hassam and A. N. Dharamsi, Short D-D Bond Lengths in the Presence of Electronic Charge Concentrations of Commensurate Scale: A Model Calculation, (1990).

5. J. F. Drake, A. B. Hassam, and G. Van Hoven, Thermal Equilibrium and Stability of Coronal Loops, (1988).

6. R. A. Scheper and A. B. Hassam, Line-Tying and Frozen-in for the Earth-Magnetosphere System: The One-Dimensional Problem (1998).

7. A. B. Hassam, Can Field Reversed Configurations be Maintained by Pressure Sources (1998).

Reviews

1. J. F. Drake and A. B. Hassam, START Plasma Overcomes Large-Scale Instability, Phys. World **6**, 22 (1994).

Unrefereed Conference Proceedings

1. K. Molvig, et al., Theory of Stochastic Magnetic Fluctuations and Anomalous Electron Thermal Conductivity in Tokamaks, Plasma Physics and Controlled Nuclear Fusion Res., Int'l. Atomic Energy Agency, Vienna, CN-38-C-2 (1980).

2. J. F. Drake et al., Stabilization of the Tearing Mode in High Temperature Plasmas, Plasma Physics and Controlled Nuclear Fusion Research, Int'l. Atomic Energy Agency, Vienna, CN-41/P-2-3 (1982).

3. B. U. O. Sonnerup et al., Reconnection of Magnetic Fields, in Solar Terrestrial Physics: Present and Future, D. M. Butler and K. Papadopoulos (eds.), NASA Reference Publication 1120, p. 1-20 (1984).

4. T. M. Antonsen et al., Studies of Major Disruptions and Tearing and Ballooning Modes, Plasma Physics and Controlled Nuclear Fusion Research, Int'l. Atomic Energy Agency, Vienna, CN-44/E-11-3 (1984).

5. J. F. Drake et al., Sawteeth, Temperature Profiles and Current Penetration in Tokamaks, Plasma Physics and Controlled Nuclear Fusion Res., Int'l. Atomic Energy Agency, Vienna, (1986).

6. A. N. Dharamsi, S. Jong, and A. B. Hassam, Excited State Absorption Measurements in Some Scintillator Dye Solutions, SPIE Proceedings, Vol. 669, Laser Applications in Chemistry, 175 (1986).

7. J. F. Drake, A. B. Hassam, A. M. Dimits, and P. N. Guzdar, Temperature Gradient Modes, Streamers, and Anomalous Transport, The Joint Varenna-Lausanne Theory of Fusion Plasmas, Chexbres, 3-7 Nov. 1988.

8. T. Antonsen, J. Q. Dong, J. F. Drake, P. N. Guzdar, A. B. Hassam, and C. S. Liu, Temperature Gradient Modes and Anomalous Transport, Plasma Physics and Controlled Nuclear Fusion Research, Int'l. Atomic Energy Agency, Vienna, D-IV-7 (1988).

9. R. E. Denton, J. F. Drake, A. B. Hassam, and R. G. Kleva, Disruptive Phenomena in Tokamak Plasma, Plasma Physics and Controlled Nuclear Fusion Research, Int'l. Atomic Energy Agency, Vienna, D-III-1-2 (1988).

10. A. M. Dimits, J. F. Drake, P. N. Guzdar, and A. B. Hassam, Temperature Gradient Modes, Streamers, and Anomalous Transport, Proceedings of US-Japan Workshop on Structures in Combined Plasmas, (1989).

11. A. N. Dharamsi and A. B. Hassam, Fast Optoacoustic Processes in Semiconductors and Insulators, XVII International Quantum Electronics Conference Technical Digest (Anaheim, CA), 78 (1990).

12. A. B. Hassam, et al., Spontaneous Poloidal Spin Up and Transition to H Mode, Plasma Phys. and Cont. Nucl. Fusion Res., IAEA, Vienna (1990).

13. P. N. Guzdar, J. F. Drake, A. B. Hassam, D. McCarthy, and C. S. Liu, Fluid Simulation of Drift-Resistive Ballooning Modes and the L-H Transition in Tokamaks, Proceedings of the 1st Energy Res. Power Supercomputer Users Sympos., Gaithersburg, MD (1991).

14. A. B. Hassam and F. L. Waelbroeck, Stabilizing Tokamak Microturbulence by NB Driven Rotation in Research Trends in Physics, New Ideas in Tokamak Confinement, M. N. Rosenbluth (Ed), p. 217 (1995).

15. J. F. Drake et al., Tokamak Edge Transport, LH Transition, Generation of Velocity Shear, Plasma Phys. and Controlled Nucl. Fusion Res., IAEA, Vienna (1992).

16. P. Gohil, K. Burrell, A. Hassam, and T. Osborne, Plasma Rotation and the Radial E-field During Off-Axis NBI in D3D Tokamak, 5th H-Mode Workshop, Princeton Plasma Physics Laboratory (1996).

17. B. N. Rogers et al., Turbulence and Formation of Transport Barriers in Finite-β Tokamaks, 16th IAEA Fusion Energy Conference, Montreal (1996).

18. M. G. Jackson, B. R. Osborn, R. F. Ellis, and A. B. Hassam, CCP's: Enhanced Stability Scenarios, Proceedings of the 2nd Symposium "Current Trends in International Fusion Research", Washington DC (1998).

Talks

Invited Talks at Workshops and Conferences

1. A. B. Hassam, Nonlinear Drift-Tearing Modes, American Physical Society, Division of Plasma Physics, San Diego (1985).

2. B. H. Ripin, J. D. Huba, and A. B. Hassam, Large Larmor Radius Interchange Instability, American Physical Society, Division of Plasma Physics, San Diego (1987).

3. A. B. Hassam, Soft and Hard Thresholds for Ion Temperature Gradient Transport, Sherwood Fusion Theory Meeting (San Antonio), (1989).

4. A. B. Hassam, A Simulation of the December 1984 Ba Release, AMPTE Joint Science Working Group Meeting, (Shepherdstown, WV) (1990).

5. A. B. Hassam, T. M. Antonsen, J. F. Drake, and C. S. Liu, Spontaneous Poloidal Spin-Up of Tokamaks and Transition to H-Mode, IAEA TCM on Tokamak Transport, Princeton (1990).

6. A. B. Hassam, Spontaneous Poloidal Spin-Up of Tokamaks and L-H Transition, H-Mode Workshop, Abingdon, Oxfordshire (1991).

7. A. B. Hassam and F. L. Waelbroeck, Stabilization of Tokamak Microturbulence by Neutral Beam Driven Rotation in Research Trends in Physics, New Ideas in Tokamak Confinement, M. N. Rosenbluth (Ed), p. 217 (1995).

8. J. F. Drake, J. M. Finn, P. N. Guzdar, A. B. Hassam, D. R. McCarthy, T. M. Antonsen, and C. S. Liu, Tokamak Edge Transport, Sheared Flow and the L-H Transition, IAEA Meeting, Würzburg, Germany (1992).

9. A. B. Hassam, F. Waelbroeck, G. G. Craddock, P. H. Diamond, Y. B. Kim, A. Hyatt, T. Jensen, A. Leonard, H. Biglari, C. K. Phillips, M. Ono, Theory of Active Confinement Control by Externally-Induced Generation of Velocity Shear Layers, IAEA Meeting, Würzburg, Germany (1992).

10. A. B. Hassam, Spontaneous and Driven Poloidal Flows in Toroidal Plasmas, American Physical Society, Division of Plasma Physics, Seattle, WA (1992).

11. A. B. Hassam, Centrifugally Confined Plasmas, Fusion Energy Sciences Advisory Committee Panel on Alternative Concepts, San Diego (1996).

12. A. B. Hassam, Centrifugally Confined Plasmas: An Alternative Concept for Fusion, Innovative Confinement Concepts Meeting, Marina del Rey, CA (1997).

13. A. B. Hassam, Velocity Shear Stabilization of SPIRIT FRC Plasma, Workshop on the SPIRIT Expt for Rotating FRC's, Princeton Univ, Plasma Lab (1998).

14. A. B. Hassam, Thermoelectric Steady-State FRC's, Workshop on the SPIRIT Expt for Rotating FRC's, Princeton Univ, Plasma Lab (1998).

15. A. B. Hassam, Flowing Plasmas, Symposium for R. M. Kulsrud's 70th Birthday, Princeton University, Astrophysical Sciences (1998)

16. A. B. Hassam, Steady-State Thermoelectric FRC's, Workshop on Status and ... for FRC Research, Princeton Univ, Plasma Lab (1999).

17. A. B. Hassam, Stailization of Z-Pinch by Velocity Shear, MHD Workshop, Princeton Univ, Plasma Lab (1999).

18. A. B. Hassam and R. F. Ellis, Maryland Centrifugal Torus: A Centrifugally Confined Plasma for Fusion, Fusion Summer Study, Snowmass, CO (1999)

19. A. B. Hassam, Liquid Metal Flow Encasing a Magnetic Cavity, Fusion Summer Study Snowmass, CO (1999)

20. A. B. Hassam, Stabilization of Ideal MHD modes by Velocity Shear, IAEA technical conference on Confinement and Stability of Fusion Alternates, Varenna, Italy (2000)

21. R. F. Ellis and A. B. Hassam, Centrifugally Confined Plasmas: An Alternative Concept for Fusion, American Physical Society, Division of Plasma Physics, Quebec City, Canada (2000).

22. A. B. Hassam and R. F. Ellis, Velocity Shear Stabilization of Ideal MHD Instabilities, US-Japan Workshop on Velocity Shear Stabilization in Plasmas, Austin, Tx (2002).

23. R. F. Ellis and A. B. Hassam, Maryland Centrifugal Experiment: Motivation and Status, Innovative Confinement Concepts Conference, College Park, Md (2002).

Colloquia and Seminars

1. Convective Cells and Transport in Toroidal Plasmas, Princeton University Plasma Physics Seminar (1978).

2. Convective Cells and Transport in Toroidal Plasmas, University of Maryland Plasma Physics Seminar (1979).

3. Temperature-Gradient-Driven Drift Waves, University of Maryland Plasma Physics Seminar (1980).

4. The Tokamak Approach to Fusion Power, Old Dominion University Electrical Engineering Colloquium (1982).

5. A New Ohm's Law for Tearing of Field-Reversed Configurations, Naval Research Laboratory Plasma Dynamics Seminar (1986).

6. Quasilinear Evolution of the Self-Filamentation Instability, University of Maryland Plasma Physics Seminar (1986).

7. Large Larmor Radius MHD, University of Maryland Plasma Physics Seminar (1987).

8. Tearing Modes in Solar Coronal Loops, NASA Solar Physics Seminar (1988).

9. The D-D Bond in the Presence of Electronic Change Configurations, and Cold Fusion, University of Maryland, Plasma Physics Seminar (1989).

10. Magnetohydrodynamics of Systems with Large Larmor Radius, University of Maryland, Space Science Seminar (1990).

11. Plasma Flows in Tokamaks, University of Maryland Plasma Physics Seminar (1992).

12. Spontaneous and Driven Poloidal Flows in Tokamaks, Princeton University TFTR Seminar (1992).

13. Spontaneous and Driven Flows in Tokamaks, GA Technologies (1992).

14. Stabilizing Tokamak Microturbulence by NBI Driven Poloidal Flow, UCLA Plasma Physics Seminar (1992).

15. Dynamics of Large Larmor Radius Plasmas, UCSD Space Physics Seminar (1993).

16. Suppressing Microturbulence by Sheared Rotation: Theory and Recent DIII-D Experiment, University of Maryland Plasma Physics Seminar (1993).

17. Magnetic Nulls as Low-Alfvénic-Q Cavities, Solar/Stellar Theory Group, GSFC, NASA (1994).

18. Centrifugally Confined Plasmas for Fusion, Plasma Theory Seminar, Lawrence Livermore Labs (1995).

19. Frozen-in and Line-Tying for the Earth-Magnetosphere System, Space Plasma Theory Seminar, University of Maryland (1996).

20. MHD of Fusion and Other Plasmas, Graduate Student Seminar, Foundations and Frontiers, University of Maryland (1996).

21. Centrifugally Confined Plasmas for Fusion, Plasma Seminar, Univ. of Maryland (1996).

22. Centrifugally Confined Plasmas for Fusion, Princeton University Plasma Physics Laboratory (1997).

23. Centrifugally Confined Plasmas: An Alternative Concept for Fusion, NRL Plasma Seminar (1998).

24. Centrifugally Confined Plasmas: An Alternative Concept for Fusion, Plasma Seminar, MIT (1999).

25. Centrifugally Confined Plasmas: An Alternative Concept for Fusion, Plasma Seminar, Columbia University (1999).

26. Centrifugally Confined Plasmas: An Alternative Concept for Fusion, Plasma Seminar, University of Wisconsin (2000).

27. Can Velocity Shear yield laminar, confined plasmas for Fusion?, Plasma Seminar, MIT (2002).

28. Thermoelectric Rotating Torus: An Alternative Concept for Fusion?, Plasma Seminar, University of Maryland (2003).

Exhibits

1. "What is Fusion?", Display Posters at Fusion Exhibit, Capitol Hill, 1993, 1994, 1995, 1996.

News Media

1. Discovery Science Channel, Interviewed on "Science Live!", on "Fusion as a Future Energy Source", Discovery Science Studios, Washington, DC (2000)

Patents, etc.

1. D. P. Lathrop and A. B. Hassam, D-T Fusion from Cavitation of Liquid Metals, Patent Disclosure, Univ. of Maryland (1997).
2. A. B. Hassam and D. P. Lathrop, "Magnetically Secured Flowing Liquid Metal Walls for High Heat Flux Processing", Patent Disclosure, Univ. of Maryland (1999).

Contracts and Grants

1. Co-Principal Investigator, Solar Loop Equilibria Research, NASA, June 1988 – June 1989, $60,000; June 1989 – June 1991, $75,000.
2. Principal Investigator, Spontaneous and Induced Perpendicular Rotation of Tokamaks, GA Technologies, September 1992 – August 1993 (sabbatical), $49,000.
3. Co-Principal Investigator, Maryland Controlled Fusion Research Program, DOE, $500,000 (6 Co-PI's), ongoing.
4. Co-Principal Investigator, Nonlinear Dynamics and Plasma Transport, DOE, $100,000 (5 Co-PI's), ongoing.
5. Principal Investigator, Dynamics of Solar Coupled Flux/Flow Field Systems, NASA, June 1991 – November 1994, $55,500.
6. Principal Investigator, Magnetic Nulls as Low Alfvénic-Q Regions, NSF, May 1995 – April 1997, $47,000.
7. Principal Investigator, Numerical Study of Veloctiy Shear Stabilization of 3DMHD Instabilities, DOE, 1999 - 2002, $56,000 per year.
8. Co-Principal Investigator, Centrifugally Confined Plasma for Magnetic Fusion Energy, DOE, 1998 - 2000, $23,000 per year.
9. Project Director, LINK Foundation Fellowship awarded to graduate student D. Goel, 2000-2001, $20,000, one year
10. Co-Principal Investigator, MCT: An Expt to test Centrifugal Confinement for Magnetic Fusion Energy, DOE, 2000 - 2003, $425,000 per year.
11. Principal Investigator, Veloctiy Shear Stabilization of 3DMHD Instabilities, DOE, 2002 - 2005, $75,000 per year.

Editorships, Editorial Boards, and Reviewing Activities for Journals

1. Referee, *Phys. Fluids, Nuclear Fusion, J. Geophys. Res., Phys. Rev. Lett., Planetary and Space Science, Ap. J., Solar Physics, Am. J. Phys.*.

2. Reviewer, NSF, AFOSR, NASA, DOE.

TEACHING AND ADVISING

Courses Taught Since 1988

Course	Year	Approx. Enrollment for Each
Physics 374/374	2002–2003	25/30
Physics 374/—	2001–2002	20/–
Physics 604/411	2000–2001	40/25
Physics 604/411	1999–2000	35/30
Physics 604/262	1998–1999	35/90
Physics 761/762	1997–1998	18/4
Physics 761/798P	1996–1997	10/8
Physics 761/762	1995–1996	18/12
Physics 604/606	1994–1995	20/25
Physics 604/606	1993–1994	25/25
(Sabbatical)	1992–1993	–
Physics 301/410	1991–1992	25/25
Physics 604/606	1990–1991	25/25
Physics 761/301	1989–1990	15/25
Physics 761/301	1988–1989	15/25

Other Teaching

Advisor to Rickover Intern, Summer 1989
Independent Study, Mark Levy (1984)
Reading Course, Fluid Plasmas, 3 Grad Students (1995)
Lectures on MHD, Recipients of National Undergrad Fusion Fellowships (1996, 1997, 1998)
Independent Study, Phys 411, Chad Groft (2002)

Manuals, Notes, and Contributions to Teaching

Fluid Theory of Plasmas, University of Maryland Report, Physics Publication No. 87–037, 220 pages (1985) (Course Notes for Physics 761, Introduction to Plasma Physics).
Proposal for an Enhancement of the CMPS Undergraduate Curriculum to Reflect Computational Problem Solving, Committee Chair, to be a new Certificate in Computational Science, (2002-3)

Advising: Other Than Research Direction

Randy Holmes (undergrad, 1992)
6 incoming grad students per year (2 years)

Advising: Research Direction Undergraduate

Jeremy Cheron, 1995–1996

R. P. Lambert, Summer 1992, see publication 57
Bryan Osborn, 1998–, see publication 78
Mark Jackson, NUF Fellow, Summer 1998, see Conf. Proc. 18
Tanveer Choudhury (1998)
Ricardo Rojas, NUF Fellow, Summer 2000
David Adler 2002

Graduate

D. E. Williams, Summer 1992
D. Devine, (1990–1992) (Transferred to Univ. Colorado)
Z. Wang, (1987–1989) (Transferred to UCLA)
M. Shay, Fall 1994 (Rotating Plasmas)
Z. Chacko, S96, F96 (See publication 70)
S. Messer, 1999 - , see publication 78
A. M. Rey, 2000 - 2001

Doctoral

B. D. Scott, 1982–1985 (Ph.D.)
E. N. Opp, 1986–1992 (Ph.D.)
J. B. Harold, 1988–1993 (Ph.D.)
R. A. Scheper, 1994–1998 (Ph.D.)
Deepak Goel, 1999 - (Ph.D.)
Y. M. Huang, 2000 - (Ph D)
S. W. Ng, 2002 - (Ph D)

SERVICE

Offices and Committee Memberships Held in Professional Organizations

Member, APS, AGU
Member, Executive Committee, Sherwood Fusion Theory Conference (1992)
Vice-Chairman, Executive Committee, Sherwood Fusion Theory Conference (1993)
Chairman, Executive Committee, Sherwood Fusion Theory Conference (1994)
Chairman, Faculty Assembly , Institute for Plasma Research (1994)
Member, Program Committee, APS Spring Meeting (1998)
Member, Program Committee, Princeton Plasma Lab MHD Workshop (1999)
Acting Chair, APS-DPP Program Theory SubCommittee, APS Meeting (1999)
Member, Program Committee, Fusion Summer Study ICC WG (Snomass) (1999)
Vice-President, University Fusion Association (2001, 2002)
Co-Chair, Local Organizing Comm, ICC2002 Conference, UMCP (2001-2)
President, University Fusion Association (2003 -)
Chair, Local Organizing Comm, US ITER Research Forum Conference, UMCP (2003)

Unpaid Reviewing Activities for Agencies

Review Panel, Member, NASA Guest Investigator Proposals (1990)
Review Panel, Member, NASA Supporting Research and Technology Proposals (1991)
Review Panel, Member, DOE review, Fusion Theory (FRC), Univ of Texas (1991)
Review Panel, Member, NASA Supporting Research and Technology Proposals (1992)
Review Panel, Member, NASA Supporting Research and Technology Proposals (1995)
Review Panel, Member, DOE review, Proof of Principle Innovative Fusion (1998)
Chair, NASA Guest Investigator - Solar Physics Review Panel (1998)

Other Non-University Committees, Commissions, Panels, etc.

Advisory Board, COLLEGE FIND, college selection service, Chapel Hill, NC(1986-88)
Working Group, Member, Transport Task Force WG on L-H Transition (1990–Present)
Working Group, Member, Transport Task Force WG on Active Control(1990–Present)
Advisory Committee, Member, Proposed Toroidal Physics Experiment, National MFE Program (1994–1995)
Selection Committee, Member, National Undergrad Fellowships in Plas Phys and Fusion Engnrng (1996, 1997)
Selection Committee, Chair, National Undergrad Fellowships in Plas Phys and Fusion Engng (1998, 1999)

Paid Consultancies

Consultant, Science Applications, Inc., McLean, VA (1983–1990)
Consultant, Blacklight Power Inc., Cranbury, NJ (2001)

University Committees

Chair, CMPS Committee on New Course in Comp. Science (1997)

Chair, CMPS Committee for Undergrad Computing Initiative (2002)